Southeast Regional CoastWatch Program

NOAA Beaufort Laboratory

Second Quarter Report

1 January - 31 March 2000

Program Staff

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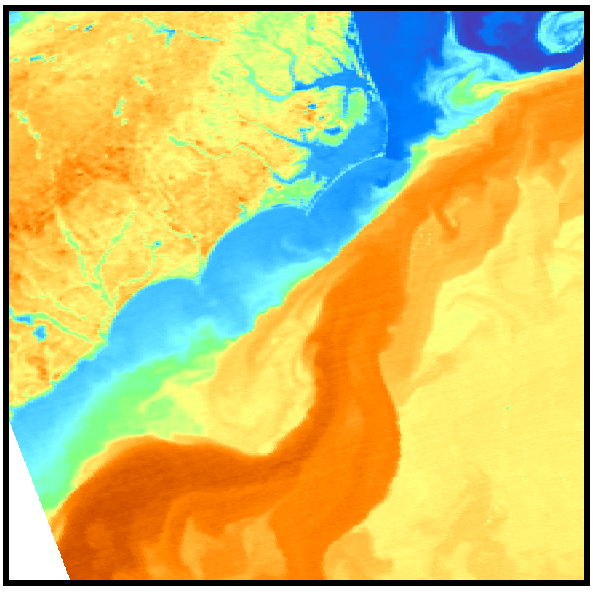
1. User Registration

Our online registration system is complete. We modified the form from the Central Registration site. Users identify their use category and then input their own username and password. This is written to a password file and to a database. When entering the system, a user is prompted for their username and password and the system records that the individual user has entered the system on that day. We have been made aware of several bugs, which have been fixed. This system allows us to track individual users and by extension categories of users. By the end of the year we should have a very good idea of which users are using which products.

2. WebSite Development

We have added two new features to our web page. First, we are now providing gif imagery scaled in ^{o}C and scaled in ^{o}F. We added ^{o}F products because many of our recreational



users were requesting this. We have also added some preliminary information as to the spatial reliability of our CoastWatch products. This information can be found at http://www.bea.nmfs.gov/cw/georectification.html or use the link *Spatial Reliability of CoastWatch Products* from our main page http:\\www.bea.nmfs.gov.

3. System Operations:

System operations were relatively smooth. We have experienced several shutdowns owing to electrical problems, but we are getting better at catching these in a timely manner. Most of these shutdowns affect the entire NOAA Beaufort Laboratory and are thus, beyond our control.

4. Product Development & Project Updates:

4.1 Development of 'Relatively' Cloudfree Image Archive - We continue to work on this on an ad hoc basis. We have had several users request imagery and have added to the 'cloudfree' archive accordingly.

4.2 OceanColor Support

4.2.1 *Hurricane Floyd* - We have worked some with Pat Tester's group at the NOAA Beaufort Laboratory on the effects of Hurricane Floyd on the Pamlico Sound ecosystem. However, outside funding to support this research has remained elusive. A proposal developed with collaborators at Duke University and University of North Carolina, Chapel Hill was not funded. We are waiting to hear on another proposal. Jon Hare will be participating in a meeting - *In the Aftermath of Hurricane Floyd: Recovery in the Coastal Plain* - in May at East Carolina University for Pat Tester.

4.2.2 *Tag-a-Giant* -We have provided Barbara Block from Stanford University with some preliminary OceanColor data (Figure. 1). We are in the process of providing additional products. Images used were chosen from images purchased by NOAA CoastWatch Program and overlays were done in ArcView with the assistance of Mike Soracco (Coastal Services Center).

4.2.3 *SeaWIFS Algorithm Development* - We provided limited support to SeaWIFS algorithm development work in cooperation with Pat Tester and Rick Stumpf - Center for Coastal Monitoring and Assessment. A cruise was conducted by staff of the NOAA Beaufort Laboratory in the vicinity of Charleston Bump and along the coast from Beaufort, North Carolina to Chesapeake Bay.

Figure 1. Experimental OceanColor product developed for the *Tag-a-Giant* program

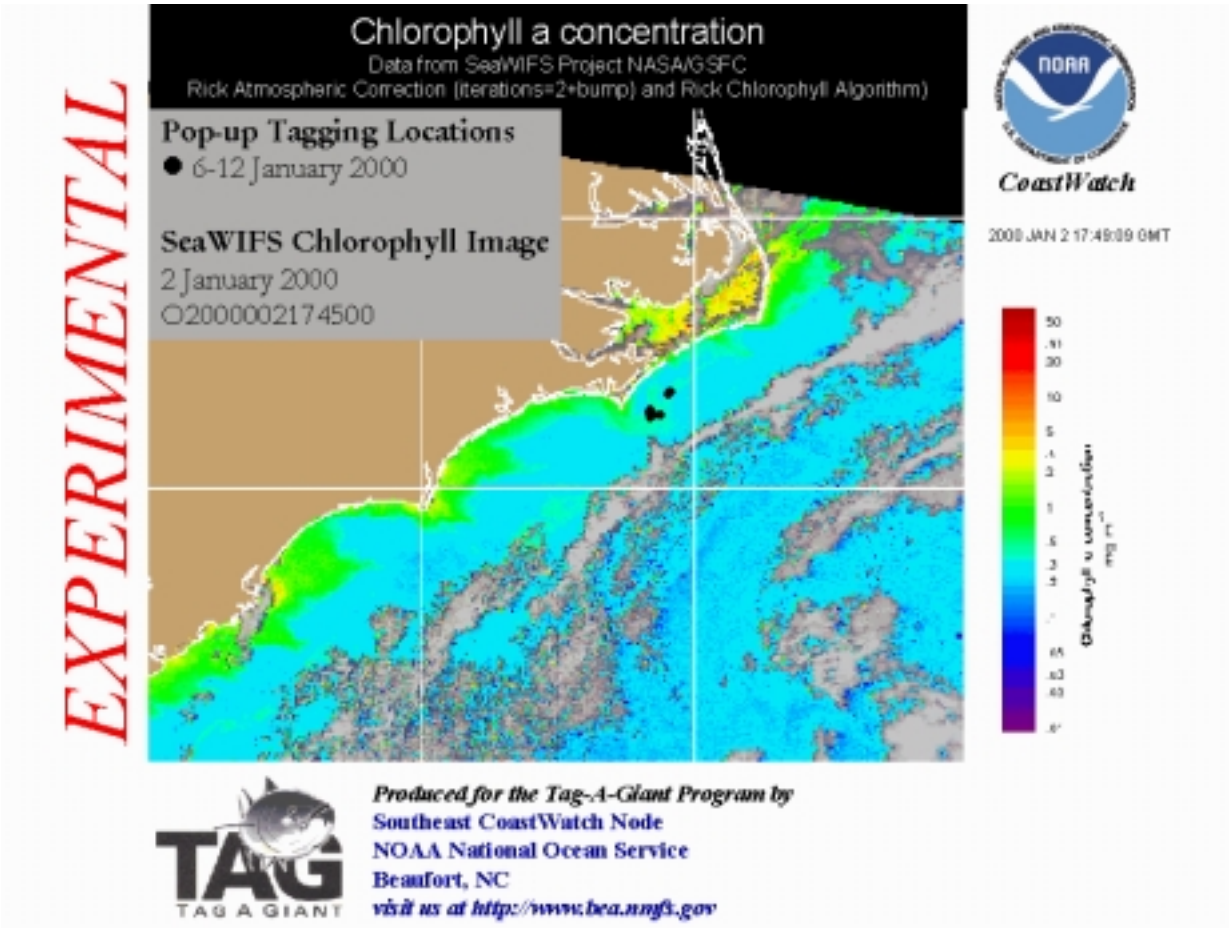
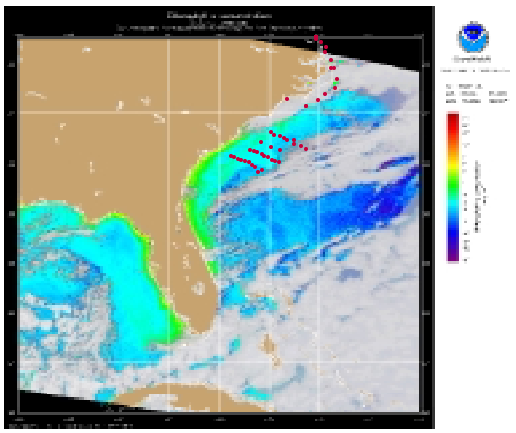


Figure 2. Location of chlorophyll samples taken overlaid on OceanColor data provided through NOAA's CoastWatch Program



Chlorophyll samples were collected and processed by Pat Tester's group. These data were sent to Rick Stumpf. We have produced an overlay of chlorophyll stations on SeaWIFS imagery to provide the researchers involved a quick view of where the samples were taken (Figure 2).

4.3 Near Real Time SST Support - There were no activities in this area during this quarter.

4.4 Sea Turtle & Fisheries Interactions - Joanne McNeill o the NOAA Beaufort Laboratory has finished her annual use of CW imagery to monitor SST in order to make decisions regarding sea turtle-fisheries interactions. CW imagery remains a vital component of this effort.

4.5 Fisheries Oceanography - CW imagery made a large contribution at the Charleston Bump Colloquium. CW imagery was used by both John J. Govoni from the NOAA Beaufort Laboratory and John Bane from University of North Carolina Chapel Hill to elucidate the dynamics of the Charleston Gyre, a persistent cyclonic eddy found north of the Charleston Bump. Dr. Govoni's contribution included both SST imagery and OceanColor imagery thanks to Heng Gu and Mike Soracco. The proceedings of this Colloquium will be published by the American Fisheries Society as a peer-reviewed symposium volume.

Jon Hare has given a seminar - *Nets, models and satellites: changing views of cross-shelf larval transport* - at several institutions this quarter: Dalhousie University (Halifax, Nova Scotia) in February, University of North Carolina at Chapel Hill in April and Duke University Marine Laboratory in April. The research described couples SST data derived from CW imagery with the output of a three-dimensional numerical model (developed by Cisco Werner, University of North Carolina, Chapel Hill) to predict menhaden ingress into Beaufort Inlet. The approach is iterative: develop a model based on correlative relationships using one year of larval fish and SST data and then to test this model against other years of larval fish data. Several new research users have been brought into the Program through these seminars.

4.6 Marine Mammal Investigations - We continue to support the marine mammal investigations of Aleta Hohn - NOAA Beaufort Laboratory. Caterina D'Agrosa, a PhD student at Duke University, is using CW imagery as part of her research examining the environmental influences on marine mammal distributions. Rochelle Newbold, a Masters student at Duke University, is analyzing SST's to examine the relation between dolphin stranding and changes in temperature structure on the southeastern US shelf and this work should be completed by the end of the third quarter.

We also supported the work of Jeremy Rusin an employee in the Protected Species Team at the NOAA Beaufort Laboratory. Jeremy and Aleta Hohn are examining the influence of

temperature on the winter distribution of dolphin along the North Carolina coast. Animals were tagged with ARGOS and VHF radio transmitters (Figure 4). Temperatures at the ARGOS/VHF-determined locations were extracted from CW SST imagery and compared to four coastal locations (Figure 5). Preliminary results suggest that dolphins are preferentially spending time in Raleigh Bay where late winter and early spring temperatures are warmest owing to frequent intrusions of Gulf Stream water (Figure 6).

Figure 4. Dolphin with ARGOS transmitter attached to dorsal fin. Figure kindly provided by Dr. Aleta Hohn - NOAA Beaufort Laboratory Photo by Keith Rittmaster, North Carolina Maritime Museum.

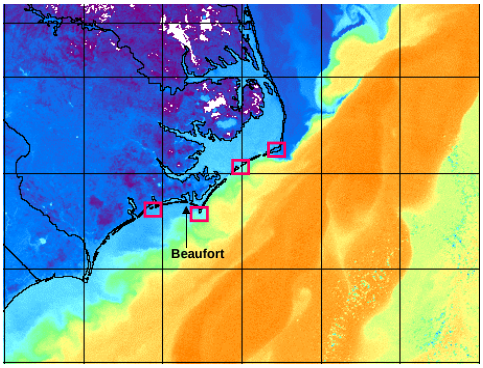


Figure 5. Four locations from which sea surface temperatures were extracted for comparison to temperatures of dolphin locations determined from ARGOS Transmitters. Figure kindly provide by Dr. Aleta Hohn - NOAA Beaufort Laboratory. SST data from 7 March 2000.

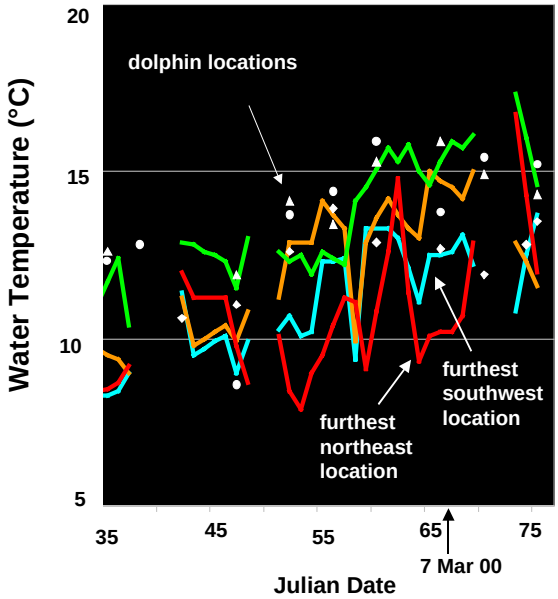


Figure 6. Extracted SST for four coastal locations (see Figure 5) shown with extracted SST for locations of dolphins as determined from ARGOS and VHF transmitters. 7 March 2000 indicates the day of the image shown in Figure 5. These preliminary data suggest that dolphins are primarily located in the area of the warmest temperatures during the late winter/early spring. Figure kindly provide by Dr. Aleta Hohn - NOAA Beaufort Laboratory

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